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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,004	09/30/2004	Christoph Helmut Bathe	PHDE020060US	9843
7590 10/07/2005			EXAMINER	
Philips Intellectual Property & Standards 595 Miner Road Cleveland, OH 44143			MIDKIFF, ANASTASIA	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/510,004	BATHE ET AL.	
	Examiner	Art Unit	
	Anastasia Midkiff	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9 and 10 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>30 September 2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

The disclosure is objected to because of the following informalities: The specification includes a heat transfer coefficient, wherein the heat transfer rate used to calculate said heat transfer coefficient is given in units of kW/K. Heat transfer rates require units of length and cross-sectional area to obtain a finite value for the amount of heat transferred per unit of temperature difference. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

With respect to Claim 2, applicant claims a heat transfer coefficient, wherein the heat transfer rate used to calculate said heat transfer coefficient is given in units of

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kW/K. Heat transfer rates require units of length and cross-sectional area to obtain a finite value for the amount of heat transferred per unit of temperature difference. Hence, the disclosure does not enable one of ordinary skill in the art at the time of invention to make and/or use a device having a heat transfer coefficient smaller than 0.0005/K.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to Claim 2, line 2, the limiting meaning of " $\theta = \phi/P_{\max}$... is smaller than 0.0005/K wherein ϕ (in kW/K)" cannot be ascertained and, therefore, is indefinite. For examination purposes, this limitation has not been afforded any patentable weight.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent to Rogers et al. (USP# 6,215,852).

With respect to Claims 1 and 2, Rogers et al. teach a device for generating x-rays, comprising an electron-emitting source cathode (82), a carrier which is rotatable about an axis which generates x-rays as a result of the incidence of said electrons upon the material on said carrier (80, Figure 3, and Column 18 Lines 2-11), a heat absorbing member arranged between said source and said carrier (132), a cooling system (112) which is in thermal connection with said heat absorbing member (Column 17, Lines 4-10), wherein a rate of heat transfer via said thermal connection is substantially larger than a rate of heat absorption by said heat absorbing member (Column 7 Line 67, Column 8 Lines 1-3, and Column 18 Lines 20-24), and wherein said thermal connection comprises a thermal barrier (108) which limits said rate of heat transfer by virtue of the materials comprising said barrier and said absorbing member (Column 16 Lines 55-58, and Column 9 Lines 20-21), occurring via said thermal connection, per unit of temperature difference between said cooling system and said heat absorbing member, in a predetermined manner.

With respect to Claim 3, Rogers et al. further teach said thermal barrier comprising a mounting member (108) by means of which said heat absorbing member (132) is mounted in said device, said heat absorbing member substantially smaller in dimension than said mounting member, as seen in the direction parallel to the electron beam path of said source (Figure 6, Column 16 Lines 53-55, and Column 17 Lines 4-6).

With respect to Claim 4, Rogers et al. further teach said heat absorbing member (132) is rotationally symmetrical to said electron beam path, and said mounting member

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(108) is concentric and annular relative to said electron beam path. (Figure 6, and Column 17 Lines 4-6).

With respect to Claims 5 and 9, Rogers et al. further teach said mounting member (108) made of graphite, which has a thermal conductivity of $90.9 \text{ W/m}^{\circ}\text{K}$, and said heat absorbing member (132) made of tungsten, which has a higher thermal conductivity of $174 \text{ W/m}^{\circ}\text{K}$ (Column 9 Lines 20-21, and Column 16 Lines 55-58).

With respect to Claim 7, Rogers et al. further teach said heat absorbing member (132) having a first side facing said carrier (82), a second side facing away from said carrier, with said mounting member in thermal contact with said heat absorbing member near said second side (Figure 6, 134a).

With respect to Claim 10, Rogers et al. further teach the side of said heat absorbing member facing said carrier has a surface coating of electron absorbing material (124, and Column 16, Lines 21-30) said surface seen as concave from the impingement position (98) of electrons on said carrier.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent to Rogers et al. (USP# 6,215,852), in view of U.S. Patent to Klostermann et al. (USP# 5,056,126).

With respect to Claim 6, Rogers et al. teach all the limitations of Claim 3, as disclosed above, but do not teach a mounting member of stainless steel.

Klostermann et al. teach the use of stainless steel in a mounting envelope for a heat cage that is located between a source and a carrier in a device for generating x-rays (Column 2 Lines 25-29 and 37-41).

It would be obvious to one of ordinary skill in the art at the time of the invention to use the stainless steel mounting of Klostermann et al. for mounting the heat absorbing member of Rogers et al., as stainless steel withstands high-temperatures, as taught by Klostermann et al. (Column 7 Lines 57-58, Column 9 Lines 8-11, and Column 10 Lines 12-14).

Allowable Subject Matter

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The best prior art of record discloses a device for generating x-rays comprising many of the features disclosed in Claim 1, including an electron-emitting source cathode, a carrier which is rotatable about an axis which generates x-rays as a result of the incidence of said electrons upon the material on said carrier, a heat absorbing

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member arranged between said source and said carrier, a cooling system which is in thermal connection with said heat absorbing member, wherein a rate of heat transfer via said thermal connection is substantially larger than a rate of heat absorption by said heat absorbing member, and wherein said thermal connection comprises a thermal barrier which limits said rate of heat transfer by virtue of the materials comprising said barrier and said absorbing member, occurring via said thermal connection, per unit of temperature difference between said cooling system and said heat absorbing member, in a predetermined manner.

However, the prior art fails to teach or fairly suggest a device for generating x-rays wherein the thermal barrier comprises a vacuum gap, said gap present between radiant heat transferring surfaces of said heat absorbing member and of said cooling system.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U. S. Patent to Andrews (USP# 6,400,799) .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anastasia Midkiff whose telephone number is 571-272-5053. The examiner can normally be reached on M-F 7-4.

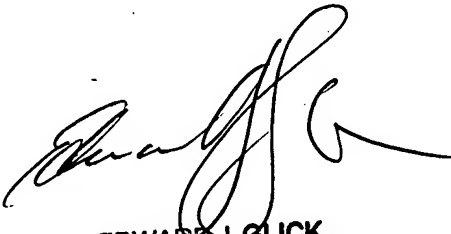
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER